

REMARKS

In response to the Office Action mailed March 23, 2008, Applicants respectfully request reconsideration. All of the issues raised in the Office Action have been carefully considered and are addressed herein.

Claims 1, 4-13, and 17-26 are pending in this application, with claims 1, 17, and 24 being independent claims. In this paper, claims 1 and 4-13 have been amended, claims 3, 15, and 16 have been canceled without prejudice or disclaimer, and new claims 17-26 have been added. No new matter has been added.

In view of the following remarks, the pending application is believed to be in condition for allowance.

I. Allowable Subject Matter

Applicants note with appreciation that claims 8-10, 12, and 13 contain allowable subject matter. Applicants have refrained at this time from re-writing any of the allowable dependent claims in independent form, as each of these claims depends from a base claim that is believed to be in allowable condition, as discussed further below.

II. Objection to Drawings

The Office Action objected to the drawings because elements corresponding to “an input signal,” “means of an optical coupling,” and “fed back,” as recited in lines 2-4 of former claim 3 were allegedly not shown in the drawings. Claim 3 has been canceled, and thus the objection to the drawings is now moot. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

III. Objections to Claims

The Office Action objected to claims 1, 3-9, 11-13, and 16 for minor informalities. The Office Action provides no details, however, regarding the objection to claim 1. Thus, Applicants assume that the asserted objection to claim 1 was erroneous, and it is respectfully requested that the objection to claim 1 be withdrawn.

Each of claims 4-9 and 11-13 has been amended to correct the noted informalities and improve readability. Accordingly, it is respectfully requested that the objections to each of these claims be withdrawn.

IV. Rejections Under 35 U.S.C. §112, second paragraph

The Office Action rejected claim 3 under 35 U.S.C. §112, second paragraph, for allegedly being indefinite. The objection to claim 3 is moot as claim 3 has been canceled.

V. Rejections Under 35 U.S.C. §102

The Office Action rejected claims 1, 3-9, 11-13, and 16 under 35 U.S.C. §102 as allegedly being anticipated by U.S. Patent No. 6,510,995 (“Muthu”). Applicants respectfully traverse these rejections.

A. Discussion of Muthu

Muthu is directed to an LED-based lighting system for generating white light used to illuminate products in a retail display (Muthu, Abstract; Fig. 1). In Muthu, the drive circuitry for the LEDs in the lighting system includes a resonant converter connected to a high frequency isolation transformer (Muthu, col. 3, lines 45-58; Fig. 2). The transformer drives three AC/DC converter circuits to provide current to each of three groups of LEDs, with each group of LEDs comprising LEDs of a different color (Muthu, Fig. 2). A feedback circuit in Muthu provides feedback signals from the LEDs to a microprocessor which may control the resonant converter based in part on the feedback signals.

B. Muthu Fails to Disclose or Suggest All Limitations of Independent Claim 1

Claim 1, as amended, recites “a resonant power LED control apparatus comprising a single resonant converter for the simultaneous, independent brightness and color control of two LEDs or two groups of LEDs, wherein the converter comprises a half or full bridge DC/AC converter with a control unit, a resonant capacitor, and a transformer, **wherein at least one first LED of the two LEDs or two groups of LEDs conducts a first current only during a positive half-cycle of a secondary voltage across at least one secondary winding of the transformer,**

and at least one second LED of the two LEDs or two groups of LEDs conducts a second current only during a negative half-cycle of the secondary voltage,” (emphasis added).

Support for this amendment is found at least at page 3, lines 6-9 of Applicants’ specification. Muthu fails to disclose or suggest this limitation of claim 1.

The lighting system of Muthu includes a group of red LEDs, a group of green LEDs, and group of blue LEDs that when mixed together produce a white light output (Muthu, Fig. 1). Each of these groups of LEDs is driven by a separate AC/DC converter which receives power from a transformer. Muthu fails to disclose or suggest in any way that one of the groups of LEDs conducts current only during a positive half-cycle of a secondary voltage of the transformer, whereas another group of LEDs conducts current only during a negative half-cycle of a secondary voltage of the transformer. Rather, all of the groups of LEDs in Muthu conduct current during both the positive and negative half-cycles of the voltage produced at the secondary side of the transformer (Muthu, Figs. 2 and 3).

For at least these reasons, claim 1 patentably distinguishes over Muthu, and it is respectfully requested that the rejection of claim 1 be withdrawn.

Each of claims 4-13 depends from claim 1 and patentably distinguishes over Muthu for at least the same reasons as claim 1. Accordingly, it is respectfully requested that each of these dependent claims be withdrawn. Claims 3 and 16 have been cancelled, and so the rejections of claims 3 and 16 are now moot.

VI. Rejections Under 35 U.S.C. §103

Claims 6 and 10 were rejected under 35 U.S.C. §103 as purportedly being obvious over Muthu in view of U.S. Patent No. 6,826,059 (“Bockle”), and claim 15 was rejected under 35 U.S.C. §103(a) as purportedly being obvious over Muthu in further view of Muthu. Claims 6 and 10 depend from claim 1 which, as discussed above, is believed to be in allowable condition, and claim 15 has been canceled by this amendment; thus, the rejection of each of these claims is moot.

VII. General Comments on the Rejections of Dependent Claims

Since each of the dependent claims depends from a base claim that is believed to be in condition for allowance, Applicants believe that it is unnecessary at this time to argue the allowability of each of the dependent claims individually. However, Applicants do not necessarily concur with the interpretation of the dependent claims as set forth in the Office Action, nor do Applicants concur that the bases for the rejection of any of the dependent claims is proper. Therefore, Applicants reserve the right to specifically address the patentability of the dependent claims in the future if deemed necessary.

VIII. New Claims

New claims 17-26 (including new independent claims 17 and 24) have been added to further distinguish Applicants' contribution to the art.

New claim 17 recites "an apparatus, comprising a transformer having a primary winding and at least one secondary winding, at least one first light source coupled to the at least one secondary winding so as to conduct a first secondary current and thereby generate first light only during a positive half-cycle of a secondary voltage across the at least one secondary winding, at least one second light source coupled to the at least one secondary winding so as to conduct a second secondary current and thereby generate second light only during a negative half-cycle of the secondary voltage, a resonance circuit coupled to the primary winding for providing a resonance current through the primary winding, and a controller coupled to the resonance circuit for providing to the resonance circuit at least one control signal having a variable duty cycle, wherein the resonance current is based at least in part on the variable duty cycle of the at least one control signal, and the variable duty cycle of the at least one control signal is based at least in part on at least one of a first feedback signal associated with the at least one first light source and a second feedback signal associated with the at least one second light source." Support for new claim 17 can be found at least at Figs. 1-4 and the corresponding text on pages 4-6 of Applicants' Specification.

New claim 24 recites "an apparatus, comprising at least one first light source coupled to at least one secondary winding of a transformer so as to conduct a first secondary current and thereby generate first light only during a positive half-cycle of a secondary voltage across the at

least one secondary winding, at least one second light source coupled to the at least one secondary winding so as to conduct a second secondary current and thereby generate second light only during a negative half-cycle of the secondary voltage, and at least one third light source coupled to the at least one secondary winding so as to conduct a third secondary current and thereby generate third light during both the positive half-cycle and negative half-cycle of the secondary voltage.” Support for new claim 24 can be found at least at page 6, line 28 – page 7 line 9 and Figs. 13 and 14.

Each of these new independent claims is believed to patentably distinguish over the cited art of record, and is in condition for allowance.

New claims 18-23 depend from claim 17 and claims 25 and 26 depend from claim 24. Each of these dependent claims is allowable for at least the same reasons as its corresponding base claim.

CONCLUSION

It is respectfully believed that all of the rejections, objections, or comments set forth in the Office Action have been addressed. However, the absence of a reply to a specific rejection, objection, or comment set forth in the Office Action does not signify agreement with or concession of that rejection, objection, or comment. In addition, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Furthermore, nothing in this paper should be construed as an intent to concede any issue with regard to any claim.

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' representative at the telephone number indicated below to discuss any outstanding issues relating to the allowability of the application.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, please charge any deficiency to Deposit Account No. 14/1270.

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